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मानक

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Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 5893 (1989): Cryolite for use in aluminium industry for the aluminium industry [MTD 13: Ores and Raw Materials]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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IS 5893 : 1989

REAFFIRMED

DEC 2003

Indian Standard
**CRYOLITE FOR USE IN
ALUMINIUM INDUSTRY—SPECIFICATION
(Second Revision)**

भारतीय मानक
एल्युमिनियम उद्योग में प्रयुक्त क्रायोलाइट — विशिष्ट
(दूसरा पुनरीक्षण)

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**BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002**

July 1989

Price Group 1

FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards on 20 January 1989, after the draft finalized by the Ores and Raw Materials Sectional Committee had been approved by the Structural and Metals Division Council.

This standard was first published in 1970 and subsequently revised in 1980. Based on the experience gained in the use of this standard, it has been decided to revise this standard. Since, in the process of manufacture of synthetic cryolite, a part of sodium fluoride (NaF) is washed out, the ratio of sodium fluoride to aluminium fluoride, NaF/AlF_3 , is less than 1.5 which is beneficial in the use of synthetic cryolite in aluminium industry. To control the bath ratio of the aluminium reduction cell, the ratio of NaF/AlF_3 has been included in this revision.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

**AMENDMENT NO. 1 APRIL 1994
TO
IS 5893 : 1989 CRYOLITE FOR USE IN ALUMINIUM
INDUSTRY — SPECIFICATION**

(Second Revision)

(Page 1, clause 4.2, col 1) — Delete the word '*Impurity*' given at the top of column.

Indian Standard

CRYOLITE FOR USE IN ALUMINIUM INDUSTRY—SPECIFICATION

(Second Revision)

1 SCOPE

This standard prescribes the requirements for cryolite for use in the production of primary aluminium.

2 REFERENCES

The Indian Standards listed below are necessary adjuncts to this standard:

<i>IS No.</i>	<i>Title</i>
IS 1387 : 1967	General requirements for the supply of metallurgical materials (<i>first revision</i>)
IS 3191 : 1968	Methods for sampling of cryolite and aluminium tri-fluoride
IS 3200 : 1965	Methods of chemical analysis of cryolite
IS 5842 : 1986	Methods for measuring the bulk density of iron oxides: lump ore, sinter and pellets (<i>first revision</i>)

3 SUPPLY OF MATERIAL

General requirements relating to cryolite for use in aluminium industry shall conform to IS 1387 : 1967.

4 REQUIREMENTS**4.1 Bulk Density**

The material shall have a bulk density not less than 1 000 kg/m³ when determined in accordance with IS 5842 : 1986.

4.2 Chemical Composition

The material, when analyzed on dry basis in accordance with 4.3 shall have the limits for the constituents as given below:

<i>Impurity</i>	<i>Percent</i>
Fluoride	53, <i>Min</i>
Sodium	31-34
Aluminium	13-15

*Impurity**Percent*

SiO ₂	0.20, <i>Max</i>
Fe ₂ O ₃	0.10, <i>Max</i>
CaF ₂	0.06, <i>Max</i>
Al ₂ O ₃	1.00, <i>Max</i>
SO ₂	0.50, <i>Max</i>
P ₂ O ₅	0.01, <i>Max</i>
LOI	0.50, <i>Max</i>
NaF/AlF ₃ by mass	1.45, <i>Max</i> (Ratio required to maintain in acidic region)

NOTES

- LOI is to be determined at 550°C for 60 minutes.
- Moisture should not be more than 0.20 percent when determined at 110 ± 5°C.

4.3 The material when tested either in accordance with IS 3200 : 1965 or any other established instrumental/chemical method shall comply with the requirements given above in 4.2. In case of dispute, the procedure specified in the latest edition of IS 3200 : 1965 shall be the referee method. For elements not covered in IS 3200 : 1965, the referee method shall be as agreed to between the purchaser and the supplier.

5 SAMPLING

Representative samples of cryolite shall be drawn according to the scheme of sampling given in IS 3191 : 1968.

6 PACKING

The material shall be suitably packed in bags as agreed to between the purchaser and the manufacturer.

7 MARKING

Each bag shall be suitably marked giving the following information:

- Name and address of the manufacturer,
- Batch or code number, and
- Net mass.

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